

REMARKS

Claim Objection

Claim 13 has been objected to due to informalities. Claim 13 has been amended as suggested by the Examiner. Accordingly, withdrawal of the objection is respectfully requested.

Allowable subject matter

Applicants acknowledge and appreciate indication of allowable subject matter in claims 6-7 and 15-16. Claim 6 has been amended to include all limitations of the parent claim and any intervening claim. Claim 15 has been amended to include all limitations of the parent claim and any intervening claim. Allowance of claims 6-7 and 15-16 is respectfully requested.

Claims 1-20

Claims 1-3, 8 and 9 have been rejected under 35 USC 102(e) as being anticipated by Li et al. (US2005/0111148).

Claim 1 has been amended to require that the AP pinned layer structure includes at least two substantially pure Fe pinned layers. Support for this amendment is found on p. 15, lines 4-5 of the present specification. The unique combination of materials found in the claimed structure is not taught nor suggested in Li or the other art of record. Therefore, allowance of claim 1 is respectfully requested.

Claims 2, 3, 8 and 9 depend from claim 1, and therefore incorporate the limitations of claim 1. By virtue of their dependence, claims 2, 3, 8 and 9 are also believed to be allowable.

Further, claim 2 has been amended to require that the free layer includes a layer of substantially pure Fe. Support for this amendment is found on p. 13, lines 18-19 and Figs. 7-8 of the present application. In sharp contrast, Li only discloses iron alloys in

conjunction with the free layer. The identical invention must be shown in as complete detail as contained in the claim. *Richardson v. Suzuki Motor Co.* 868 F.2d 1226, 1236, 9USPQ2d 1913, 1920 (Fed. Cir. 1989).

Reconsideration and allowance of claim 2 is respectfully requested.

Claims 4, 5, 10-14, 17-21

Claims 4, 5, 10-14 and 17-21 have been rejected under 35 USC 103(a) as being unpatentable over Li.

As mentioned above, claim 1 is now believed to be allowable over Li, because the unique combination of materials found in the claimed structure is not taught nor suggested in Li.

Claims 4, 5, 10 and 20 depend from claim 1, and therefore incorporate the limitations of claim 1. By virtue of their dependence, claims 4, 5, 10 and 20 are also believed to be allowable. If an independent claim is nonobvious under 35 U.S.C. 103, then any claim depending therefrom is nonobvious. *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988). Reconsideration and allowance of claims 4, 5, 10 and 20 is respectfully requested.

Further, regarding the Cr spacer layer limitation of claims 4 and 11, because this feature is not found in the prior art, the rejection of claims 4 and 11 relies on official notice. Official notice unsupported by documentary evidence should only be taken by the examiner where the facts asserted to be well-known, or to be common knowledge in the art are capable of instant and unquestionable demonstration as being well-known. As noted by the court in *In re Ahlert*, 424 F.2d 1088, 1091, 165 USPQ 418, 420 (CCPA 1970), the notice of facts beyond the record which may be taken by the examiner must be "capable of such instant and unquestionable demonstration as to defy dispute" (citing *In re Knapp Monarch Co.*, 296 F.2d 230, 132 USPQ 6 (CCPA 1961)). It is never appropriate to rely solely on "common knowledge" in the art without evidentiary support in the record, as the principal evidence upon which a rejection was based. *Zurko*, 258 F.3d at 1385, 59 USPQ2d at 1697.

Applicant respectfully challenges the taking of official notice, and respectfully asserts that it was not notorious and well known in the art of magnetic heads at the time of invention to include both a Cr AP coupling layer, and a Cr spacer positioned between the free layer and the AP pinned layer structure. As evidence of the erroneous taking of official notice, Applicant points to Li [0025]. There, Li discusses the benefits of using a Cu spacer layer. Accordingly, claims 4 and 11 are believed to be distinguishable from the proposed combination of art.

If a future rejection of claims 4 or 11 relies on Official Notice, Applicant requests a specific showing in the art of a magnetic tunnel junction sensor having a hard bias layer at least five times as thick as the free layer, and that meets all of the *Graham* criteria, and further that predates Applicant's date of invention.

In fact, Li appears to teach away from using any type of spacer material than Cu. A *prima facie* case of obviousness may also be rebutted by showing that the art, in any material respect, teaches away from the claimed invention. *In re Geisler*, 116 F.3d 1465, 1471, 43 USPQ2d 1362, 1366 (Fed. Cir. 1997). In the instant case, Li's disclosure is directed to a method of increasing CPP GMR in a spin valve structure. See Li's title. Li goes on to indicate that the DR of the stack is retained, or even enhanced, with the use of Cu spacers dimensioned as disclosed therein, since the spin diffusion length of electrons in Cu is approximately 1500 angstroms. See Li [0025]. Thus, Li indicates that Cu is not only preferred, but substantially increases the DR of the sensor. Li also indicates in [0017] that the objects of the invention are achieved by the embodiment shown in Fig. 2 (see Ji [0017-0018]). Li [0018] goes on to discuss the importance of the Cu spacer layers. Therefore, one reading Li would use a spacer layer of Cu to obtain the enhanced DR and DR/R discussed in Li [0018] and [0025]. One reading Li would not use a spacer layer of another material, as Li teaches that Cu provides the aforementioned benefits. Accordingly, the rejection based on Li violates the rule of *In re Geisler*, *supra*.

Claim 11 has also been amended to require that one of the pinned layers is thicker than another of the pinned layers. Support for this amendment is found on p. 16,

lines 18-20 of the present specification. As noted on p. 16, lines 13-20 of the present specification, in some embodiments, a pinned layer may generate magnetoresistance with the Cr spacer layer. Because magnetoresistance is a function of magnetic thickness, it may be desirable to reduce the thickness of one of the pinned layers so that this parasitic magnetoresistance does not cancel out the desired magnetoresistance of the free layer. In sharp contrast, Li indicates that his layers AP1 and AP2 have identical thicknesses.

Nor can it be said that Li would have suggested, at the time of invention, that pinned layers in an AP pinned layer structure have different thicknesses.

“It is difficult but necessary that the decisionmaker forget what he or she has been taught . . . about the claimed invention and cast the mind back to the time the invention was made (often as here many years), to occupy the mind of one skilled in the art who is presented only with the references, and who is normally guided by the then-accepted wisdom in the art.” *W.L. Gore & Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540, 220 USPQ 303, 313 (Fed. Cir. 1983), *cert. denied*, 469 U.S. 851 (1984).

The then-accepted wisdom in the art was to have both of the AP pinned layers of identical thickness, as evidenced by Li stating that his AP1 and AP2 layers are 30Å. See Li [0024]. Identical thicknesses were desired to provide a zero net magnetic moment of the AP pinned layer structure, which in turn was believed to create the greatest stability.

Further, it has been held that proceeding contrary to accepted wisdom in the art is evidence of nonobviousness. See *In re Hedges*, 783 F.2d 1038, 228 USPQ 685 (Fed. Cir. 1986).

Accordingly, the amendment to claim 11 is believed to render it allowable over the art of record.

Claims 12-14, 17-19 and 21 depend from claim 11, and therefore incorporate the limitations of claim 11. By virtue of their dependence, claims 12-14, 17-19 and 21 are also believed to be allowable. Reconsideration and allowance of claims 12-14, 17-19 and 21 is respectfully requested.

Additionally, claim 13 has been amended to require that the layer of Fe in the free layer is substantially pure Fe. Support for this amendment is found on p. 13, lines 18-19 and Figs. 7-8 of the present application.

Additionally, claim 19 has been amended to require that a total magnetic thickness of one of the pinned layers and the high coercivity layer combined is about the same as a magnetic thickness of another of the pinned layers. Support for this amendment is found on p. 16, lines 13-20 of the present application. This feature is not found nor suggested in Li.

Should the Examiner wish to discuss this matter further, the Examiner is invited to call the undersigned at (408) 971-2573. For payment of any fees due in connection with the filing of this paper, the Commissioner is authorized to charge such fees to Deposit Account No. 50-2587 (Order No. HSI920030276US1).

Respectfully submitted,

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